



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/528,388

03/18/2005

Ari Karkkainen

4090-11

4684

23117

7590

05/04/2009

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

KALAM, ABUL

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

05/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/528,388	Applicant(s) KARKKAINEN, ARI	
	Examiner Abul Kalam	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 2-13, 15-20, 24-28, 30-37, 43, 44 and 46-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 21-23, 29, 38-42 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Ni et al. (US 2003/0048074, hereinafter, Ni).

With respect to claim 1, Ni teaches a substrate-based assembly for carrying optical and/or electrical components (Fig. 2), the assembly comprising:

at least one optical component (202) assembled with at least one different component (203) for use together in providing a function in use of the assembly (§ [0030]);

a packaging layer (206, 208-210, Fig. 2) for said assembled components (§ [0031]-[0032]),

wherein the packaging layer comprises a glass material having both organic and inorganic components (§ [0033], [0041]) and is provided with at least one recess (§ [0045]: "cavities and protrusions") for use in assembling said components (205, 203, Figs. 2 and 3A-D).

With respect to claim 45, Ni teaches an opto-electronic equipment (Fig. 4) comprising a substrate-based assembly according to claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 14, 21-23, 29, 38-42 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. (US 6,022,760, hereinafter, Lebby) in view of Iha (2001/0014429, cited by Applicant).

With respect to claim 1, Lebby teaches a substrate-based assembly for carrying optical and/or electrical components (12", 16", 68', Fig. 6), the assembly comprising:

at least one optical component (10"/16") assembled with at least one different component (12" and 68') for use together in providing a function in use of the assembly (col. 11, Ins.17-20);

a packaging layer (72, Fig. 6) for said assembled components;

wherein the packaging layer is provided with at least one recess (74, Fig. 6) for use in assembling said components (col. 10, Ins. 49-61).

Thus, Lebby discloses all the limitations of the claim with the exception of explicitly disclosing wherein the packaging layer comprises a glass material having both organic and inorganic components.

However, Iha discloses a packaging material for optical and electrical components, wherein the packaging layer comprises a glass material having both organic and inorganic components (§ [0017]-[0020]). Such a hybrid glass material, as disclosed by Iha, improves the reliability of a package by preventing shrinkage, diffusion of conductive components and gelation (§ [0019]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to incorporate the teaching of Iha into the device of Lebby, to form the package layer using a hybrid glass material, which comprises both organic and inorganic components, for the disclosed purpose of improving the structure and reliability of the package (§ [0019]).

With respect to claim 14, Lebby discloses wherein said at least one optical component (10'', Fig. 6) is bump bonded (col. 3, Ins. 50-53).

With respect to claim 21, Lebby discloses wherein said at least one different component (12''/68', Fig. 6) comprises an electronic device.

With respect to claim 22, Lebby discloses wherein the electronic device comprises an integrate circuit (col. 11, Ins. 35-37).

With respect to claim 23, Lebby discloses wherein the optical component (16'') comprises a passive optical component (col. 8, Ins. 15-24).

With respect to claim 29, Lebby discloses wherein the at least one recess (74, Fig. 6) comprises an aperture to give access to an electric interconnect structure (78).

With respect to claims 38 and 39, Lebbby discloses wherein said at least one optical component comprises an active optical component, such as a laser (col. 4, ln. 43).

With respect to claims 40-42, Lebbby discloses wherein said at least one recess (74, Fig. 6) comprises an aperture to give access to an electrical interconnect structure (78) and wherein the active optical component (10") is bump-bonded or flip-chip mounted (col. 3, lns. 50-53) in the assembly to provide the electrical interconnect structure, and wherein the active optical component comprises a laser (col. 4, ln. 43), the assembly further comprising an optical modulator (76, Fig. 6) external to the laser (16").

With respect to claim 45, Lebbby teaches opto-electronic equipment (abstract, Fig. 6) comprising a substrate based assembly.

Response to Arguments

Applicant's arguments filed January 15, 2009, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is (571)272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./
Examiner, Art Unit 2814

/Phat X. Cao/
Primary Examiner, Art Unit 2814